

NORTH AMERICAN ICHNEUMON-FLIES OF THE GENERA CLISTOPYGA AND SCHIZOPYGA.¹

By R. A. CUSHMAN,

Of the Bureau of Entomology, United States Department of Agriculture.

In a recent paper under joint authorship of the present writer and S. A. Rohwer reviewing Hellen's revision of the Pimplinae² the authors revised their previous placing³ of the genus *Schizopyga* Gravenhorst to the extent of admitting it to the subfamily Ichneumoninae, but expressing no opinion as to which of the tribes recognized by themselves it should be referred to. In their own revision of the tribes² (p. 392) they referred *Clistopyga* Gravenhorst to the tribe Ichneumonini.

Subsequent study of these two genera has convinced them⁴ that both should be referred to the Polysphinctini. Since the tribal keys in the paper cited were written with the idea of excluding both genera from this tribe, neither will run there, though it was realized at the time that *Clistopyga* would undoubtedly cause trouble at this point. In order to make the two genera fall in the Polysphinctini in the classification of Cushman and Rohwer, it is necessary to revise couplets 5 and 8 of the "Key to tribes based on females"⁵ (pp. 388-391) and couplets 2 and 12 of the "Key to tribes"⁵ (pp. 391-392). The keys thus revised are given below.

KEY TO TRIBES BASED ON FEMALES.

1. Ovipositor with a dorsal notch a short distance back from apex; (internal parasites of Lepidopterous larvae), fig. 1..... 2.
Ovipositor without such a notch..... 3.

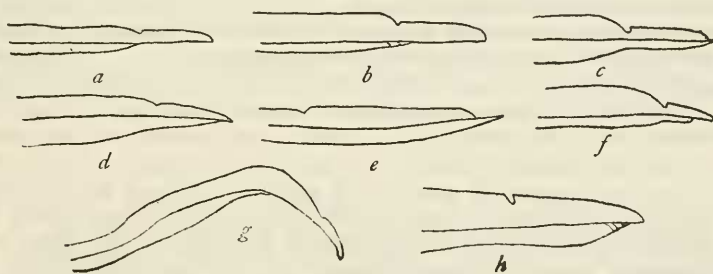


FIG. 1.—APICES OF OVIPOSITORS: a, *GLYPTA SIMPLICIPES* CRESSON; b, *LAMPRONOTA AMERICANA* CRESSON; c, *ARENETRA NIGRITA* WALSH; d, *MENISCUS SCUTELLARIS* CRESSON; e, *CYLLOCERIA LUGUBRIS* CRESSON; f, *LAMPRONOTA FRIGIDA* CRESSON; g, *LISSONOTA VERBERANS* GRAVENHORST; h, *AMERSIBIA PRIONOXYSTI* ROHWER.

¹ This paper is supplementary to the writer's revision of the tribe Polysphinctini as published in Proc. U. S. Nat. Mus., vol. 58, 1920, pp. 13-38, and is the sixth in the series of papers by the present writer and S. A. Rohwer dealing with the North American species of the subfamily Ichneumoninae (Pimplinae of Ashmead).

² Cushman, R. A., and Rohwer, S. A., Ins. Mens., vol. 8, 1920, pp. 161-164.

³ Cushman, R. A., and Rohwer, S. A., Proc. U. S. Nat. Mus., vol. 57, 1920, p. 396.

⁴ The third person pronoun is used here with the approval of Mr. Rohwer.

⁵ Proc. U. S. Nat. Mus., vol. 57.

2. Tergites without oblique furrows.....Lissonotini.
 Tergites with oblique furrows extending from basal middle to near apical margin.....Glyptini.
 3. Tarsal claws pectinate; apex of ovipositor spear-head like; (parasites of Lepidopterous larvae), fig. 2..... 4.

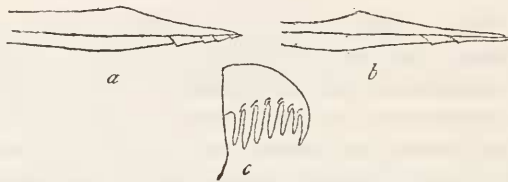


FIG. 2.—APICES OF OVIPOSITORS: *a*, *TOXOPHORIDES ALBOMARGINATA* (CRESSON); *b*, *PHYTODIETUS BURGESSI* CRESSON. HIND TARSAL CLAW: *c*, *PHYTODIETUS BURGESSI* CRESSON.

- Tarsal claws simple or with a large basal tooth or lobe, fig. 3..... 5.



FIG. 3.—HIND TARSAL CLAWS: *a*, *ITOPECTIS CONQUISITOR* (SAY); *b*, *ICHNEUMON IRRITATOR* FABRICIUS.

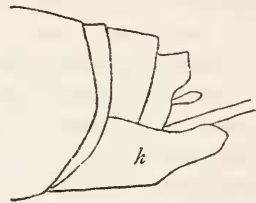


FIG. 4.—APEX OF FEMALE ABDOMEN OF *TOXOPHORIDES ALBOMARGINATA* (CRESSON) (*h*—HYPOPYGIDIUM.)

4. Tergites 1-4 with oblique and apical transverse furrows and strongly sculptured; scutellum margined laterally; hypopygium heavily chitinized and extending to or beyond apex of abdomen, fig. 4.....Lycorini.
 Tergites without furrows and polished; scutellum not margined; hypopygium neither especially heavily chitinized nor prominent.....Phytodietini.
 5. Ovipositor short, never more than half as long as abdomen, compressed (rarely subcircular in cross-section), tapering from base to the acutely pointed apex and usually with a more or less distinct swelling below at or near the middle, straight or curved upward; clypeus convex, rounded or at most truncate at apex, rarely apically impressed and very rarely confluent with face; last tarsal joint, claws, and onychia usually large, all claws with basal tooth; face narrow and usually convergent below; mandibles narrow at apex, bidentate or edentate, in the former case usually with upper tooth longer than lower, in the latter case with a broad spoon-like inner flange; areolet only rarely defined (so far as known external parasites on spiders), fig. 5.....Polysphinctini.



FIG. 5.—APICES OF OVIPOSITORS: *a*, *POLYSPHINCTA TEXANA* CRESSON; *b*, *HYMENOEPIMECIS WILTHI* (CRESSON); MANDIBLE: *c*, *HYMENOEPIMECIS WILTHI* (CRESSON).

- Ovipositor either short or long, but never formed as above; clypeus most frequently impressed and emarginate medially, occasionally inflexed and truncate or rounded at apex; apical tarsal joints rarely swollen or with large claws and onychia; mandibles either broad and bidentate at apex with equal teeth or acute and edentate, in the latter case rarely with a small inner tooth. . . . 6.
6. Ovipositor never nearly as long as body, cylindrical, or nearly, occasionally depressed or decurved at apex; claws simple, without a basal lobe or tooth, occasionally (*Itopectis*) with claws of front tarsi lobed or (*Apechthis*) all or front and middle claws lobed, in the last genus the ovipositor is decurved at apex; notauli either absent to obsolete or very deep and pit-like anteriorly, where they are set off by a sharp carina that runs back along the margin of the lateral lobe; areolet always present; nervellus always strongly reclivous with the discoidella at or near the upper end; clypeus broadly truncate or arcuate at apex, rarely with a distinct median notch-like emargination. 7.
- Ovipositor compressed, or if cylindrical it is very long and slender or upcurved; all claws either with or without basal lobes or teeth; notauli strong, rarely weak, or entirely wanting, but never defined as above. 8.
7. Dorsal margin of lance straight to apex; propodeal spiracle slit-like, the surrounding carina prominent, separated from anterior margin of propodeum by less than its length; notauli subparallel, terminating abruptly posteriorly; polished, with abdomen impunctate; species usually largely bright ferruginous or yellowish; (secondary parasites), fig. 6 **Theroniini**.

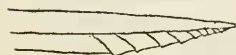


FIG. 6.—APEX OF OVIPOSITOR OF *Theronia fulvescens* CRESSON.

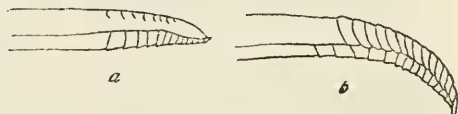


FIG. 7.—APICES OF OVIPOSITORS: *a*, *Itopectis conquisitor* (SAY); *b*, *Apechthis picticornis* (CRESSON).

- Dorsal margin of lance either decurved near apex or it is flattened at apex; propodeal spiracle usually round to long oval, rarely slit-like, and usually separated from anterior margin of propodeum by at least its length; notauli, when strong, complete and convergent posteriorly; species usually black or blackish with abdomen distinctly punctured, seldom both pale and with abdomen polished impunctate; (internal parasites of Lepidopterous pupae), fig. 7. **Ephialtini**.
8. Hypopygium very large, vomeriform, acute at apex, very heavily chitinized; clypeus broadly truncate at apex, frequently sharply inflexed and with a more or less distinct median tooth; labrum exerted (parasites on wood-boring larvae), fig. 8 **Acoenitini**.
- Hypopygium retracted from apex of abdomen 9.

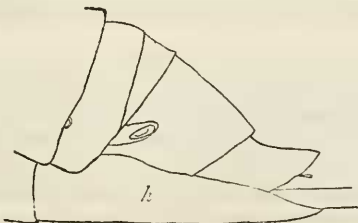


FIG. 8.—APEX OF ABDOMEN OF FEMALE OF *Coleocentrus occidentalis* CRESSON.

9. Occipital carina obsolete or interrupted dorsally; mesoscutum and scutellum transversely rugose throughout; apical tergite greatly lengthened; (external parasites on wood-boring larvae).....**Rhyssini.**
 Occipital carina complete; mesoscutum and scutellum not transversely rugose, at most the scutum is rugulose; apical tergite only rarely greatly lengthened... 1.
10. Abdomen inserted above, frequently far above, the hind coxae; first tergite narrow throughout; head transverse; occiput narrow, barely concave; temples short and strongly convexly sloping; eyes emarginate within; propodeum nearly straight and horizontal from base to insertion of abdomen; hind coxae, long, slender and nearly uniform in diameter, fig. 9.....**Labenini.**



FIG. 9.—AREOLET OF *LABENA GRALATOR* (SAY).



FIG. 10.—AREOLETS: *a*, *TROMATOBIA RUFOVARIATA* (CRESSON); *b*, *ITOPLECTIS CONQUISITOR* (SAY); *c*, *EPIURUS ALBORICTA* (CRESSON).

- Not agreeing entirely with above, fig. 10..... 11.
11. Abdomen sessile (not distinctly tapering from spiracles to base and with prominent anterior lateral angles), very rarely (*Perithous*) clavate and slightly compressed at apex; areolet usually defined; claws rarely without basal tooth; (external parasites on lepidopterous, coleopterous, and hymenopterous larvae and pupae, or in spider egg-sacs), fig. 11.....**Ichneumonini.**

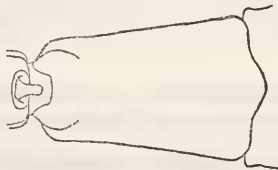


FIG. 11.—SESSILE FIRST TERGITE OF *PERITHOUS PLEURALIS* CRESSON.

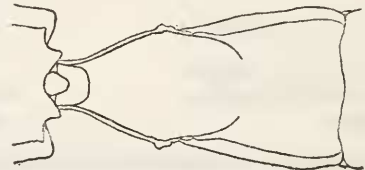


FIG. 12.—PETIOLATE FIRST TERGITE OF *XORIDES YUKONENSIS* (ROHWER).

- Abdomen petiolate (tapering from spiracles to base, and without prominent anterior lateral angles), clavate to subcylindrical and more or less compressed apically; areolet usually wanting; claws without basal tooth; temples broad; (external parasites on wood-boring larvae), fig. 12..... 12.
12. Mandibles edentate at apex, rarely with a small entodorsal tooth; legs slender, fig. 13.....**Xoridini.**



FIG. 13.—MANDIBLE OF *POEMIA AMERICANA* (CRESSON).

Mandibles bidentate at apex, the teeth subequal in length; legs stout.

Odontomerini.

KEY TO TRIBES.

1. Abdomen inserted above, frequently far above, the hind coxae, first tergite narrow throughout; head transverse; occiput narrow, completely margined, barely concave; temples short and strongly convexly sloping; eyes emarginate within; propodeum nearly straight and horizontal from base to insertion of abdomen; hind coxae long, slender and nearly uniform in diameter; thoracic dorsum not at all transversely rugose.....**Labenini.**
 Not agreeing entirely with above..... 2.

2. Mandibles edentate or with a much shorter entodorsal tooth; first tergite petiolate, spiracles before middle; areolet usually wanting; thorax depressed, mesopleura distinctly longer than high; head subquadrate; notauli complete or nearly so.
Xoridini.
- Mandibles usually bidentate apically with teeth subequal or upper tooth longer, rarely edentate in which case the inner margin is provided with a broad spoon-like flange..... 3.
3. Occipital carina wanting or interrupted medially; mesoscutum and scutellum transversely rugose throughout; abdomen inserted rather high on propodeum, occasionally far above insertion of hind coxae; first tergite with spiracles before middle and shorter than or subequal to second, which is parallel-sided.
Rhyssini.
- Occipital carina complete; mesoscutum and scutellum not transversely rugose, at most the mesoscutum partially rugulose..... 4.
4. Abdomen distinctly compressed in apical third or half, (deeper than broad).
Acoenitini.
- Abdomen not distinctly compressed..... 5.
5. Abdomen petiolate; head subcubical, swollen below antennae, not, or scarcely, narrowing behind eyes; eyes small and placed well forward, cephalo-candad length of posterior orbits longer than or subequal to that of eye; thorax and propodeum depressed, the latter very long dorsally, short posteriorly; legs, especially the femora, stout; areolet wanting..... Odontomerini.
- Not entirely as above, though rarely agreeing with one or two characters..... 6.
6. Tergites, at least 2-4, with oblique furrows which converge anteriorly until they approximate in the dorsal middle..... 7.
- Tergites without such furrows..... 8.
7. Tergites 1-5 in male, 1-4 in female, with apical transverse impressions which together with oblique impressions set off a median, transverse, sub-triangular area; malar furrow present; first tergite with dorsal carinae short; scutellum carinate laterally to apex; intercubitus nearly or quite twice as long as second abscissa of cubitus; nervellus strongly inclivous..... Lycorini.
- First tergite without either oblique or transverse impressions, and with dorsal carinae extending beyond middle; other tergites usually without transverse apical furrows; ⁶scutellum not carinate laterally; intercubitus not nearly twice as long as second abscissa of cubitus; nervellus reclivous, perpendicular, or slightly inclivous..... Glyptini.
8. Tergites beyond first without either furrows, depressions, or elevated areas; dorsal carinae of first tergite defined at most only very briefly at base (in difficult species the spiracles of first tergite are very close to the base), mesoscutum anteriorly usually with a cuneiform pale spot on each side..... 9.
- Tergites beyond first with more or less distinct elevated areas, depressions, or furrows or combinations of some or all of these factors; dorsal carinae of first tergite distinct and setting off a distinct basal concave area (in the very rare difficult species the spiracle of the first tergite is far from the base)..... 10.
9. Propodeum entirely without carinae; claws strongly curved, with few (about 6) very long, closely set teeth; entire body smooth, at most very minutely punctate..... Phytodietini.
- Propodeum usually with at least an apical transverse carina, rarely without carinae; claws long, weakly curved and if pectinate the teeth are smaller, more numerous, or sparsely set; at least the thorax dorsally and propodeum distinctly sculptured..... Lissonotini.

⁶ None of the North American Glyptini have the transverse furrows, but the South American genus *Zaglyptomorpha* Viereck has them on tergites 2-5. This genus, however, has none of the other characters of the Lycorini.

10. Propodeal spiracle slit-like, the surrounding carina prominent, separated from the anterior margin of the propodeum by less than its length; notauli subparallel, ending abruptly posteriorly; body smooth and shining, mostly bright ferruginous or yellow; propodeal carinae very strong and high.....**Theroniini**.
Propodeal spiracle round or elongate the surrounding carinae not prominent, removed from the anterior margin of the propodeum by at least its length; notauli obsolete or converging posteriorly; usually sculptured and dark colored, occasionally ferruginous or polished, but rarely both; propodeal carinae obsolete or weak, at least not very high and strong..... 11.
11. Notauli weak or absent; or if very strong and complete they are deep and pitlike anteriorly and set off by a sharp carina that runs back along the lateral margin of the mesoscutum;⁷ head set very close to prescutum; mesopleural furrow straight or curved but not angulate opposite the punctiform fovea...**Ephialtini**.
Notauli usually deep, at least anteriorly; the anterior margin of the mesoscutum distinctly trilobed; head, by reason of the longer pronotum, set off from the prescutum; mesopleural furrow angulate opposite punctiform fovea.... 12.
12. Notauli strongly impressed throughout, prescutum very prominent (if notauli are not strongly impressed, as in *Hymenoepimecis*, the prescutum is nevertheless very prominent and the other characters are especially well marked); temples flat or slightly convex, sloping to the strong occipital carina; face converging below and at least as long as wide at clypeus, the latter convex or slightly flattened, usually rounded at apex and with a reflexed margin, rarely (*Hymenoepimecis*) very weakly, broadly emarginate, never medially impressed or inflexed; mandibles narrow at apex, bidentate or edentate, in the former case usually with upper tooth longer than lower, in the latter case with a broad spoonlike inner flange; scutellum elevated and compressed from the sides; areolet very rarely defined.....**Polysphinctini**.
Notauli rarely complete, weakly impressed posteriorly, prescutum not especially prominent; temples usually strongly rounded, very rarely flat, less sharply sloping; face usually wider than long; clypeus usually medially impressed and emarginate at apex, sometimes inflexed and truncate or very weakly emarginate; teeth of mandibles subequal in length; scutellum broad, convex, or flattened; areolet usually complete, occasionally wanting or incomplete.....**Ichneumonini**.

The present writer's key to the genera of the Polysphinctini⁸ will have to be modified for the inclusion of these two genera as follows:

KEY TO GENERA.

- A. Clypeus not separated from face; mandibles edentate with a broad, spoon-like flange internally (fig. 14); ovipositor barely exerted.

Schizopyga Gravenhorst.

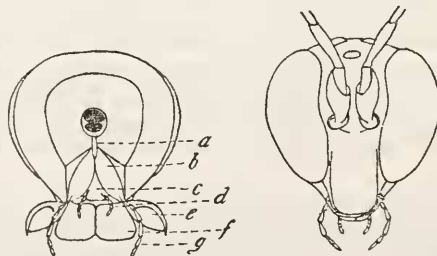


FIG. 14.—HEAD OF *SCHIZOPYGA FRIGIDA* CRESSON, REAR AND FRONT VIEW: *a*, GULAR SUBMENTAL-MENTAL REGION; *b*, CARDO AND STIPES OF MAXILLA; *c*, LABIUM; *d*, LABIAL PALPUS; *e*, MANDIBLE; *f*, LOBE OR MALA OF MAXILLA; *g*, MAXILLARY PALPUS.

⁷ None of the Holarctic genera have the notauli strong, the genera in which they are strong being principally oriental.

⁸ Cushman, R. A., Proc. U. S. Nat. Mus., vol. 58, 1920, pp. 16-17.

Clypeus separated from face: mandibles bidentate, without a flange internally; ovipositor distinctly exerted..... B.

B. Eyes parallel or nearly, face not convergent below and wider than long; clypeus truncate and flattened or impressed at apex; mandibles with teeth subequal; ovipositor curved upward, weakly compressed or sub-cylindrical; hypopygium reaching nearly or quite to apex of abdomen.

Clistopyga Gravenhorst.

Eyes convergent below, face as long as wide at clypeal foveae; clypeus either rounded or truncate at apex, but never impressed; ovipositor straight, compressed; hypopygium retracted..... 1.

1. For remainder of key see Proceedings of the United States National Museum, vol. 58, 1920, pp. 16-17.

Genus SCHIZOPYGA Gravenhorst.

Schizopyga GRAVENHORST, Ichn. Eur., vol. 3, 1829, p. 125. *Genotype*—*Schizopyga podagrica* Gravenhorst.

Very anomalous in its head characters, this genus agrees in most particulars with the more normal forms of the Polysphinctini. The form of the ovipositor, the tuberculate tergites, the deep and complete notauli, the swollen femora and apical tarsal joints, the dentate claws in the female, and the venation differ very little from those of the typical Polysphinctine.

The very peculiar head has the face long, flat, elevated above the level of the eye-margins, and completely fused with the clypeus, which is truncately rounded at apex. The mandibles are as described above, while the lobe, or mala, of maxilla is very large, almost quadrate, and when at rest lies beneath and against the mandibles meeting its fellow along the median line. The calcaria are very stout with a small apical spine-like process.

SCHIZOPYGA FRIGIDA Cresson.

Schizopyga frigida CRESSON, Trans. Amer. Ent. Soc., vol. 3, 1870, p. 159. *Type*.—Cat. No. 1468, Acad. Nat. Sci. Phila.

Discussion based on a female homotype (Rohwer) from Mount Washington, New Hampshire, and another female from Ames, Iowa. The Mount Washington specimen has the hind tibiae and tarsi more extensively black than in the Iowa specimen and the coxae are piceous. Cresson's type is from Hudson Bay Territory.

Genus CLISTOPYGA Gravenhorst.

Clistopyga GRAVENHORST, Ichn. Europ., vol. 3, 1829, p. 132. *Genotype*.—*Ichneumon incitator* Fabricius.

Readily distinguished from the other genera of the tribe by the parallel and practically nonmarginate eyes, the short hind tibiae, which never exceed the femora very greatly in length, and, in the female, the large hypopygium and upcurved ovipositor.

Ashmead's translation of Foerster's character for separating this genus from *Polysphincta*, etc., conveys exactly the opposite idea from that intended by Foerster. The ventral borders of the terminal

tergites are farther separated than normal instead of inclosing the "terminal urites." However, Foerster's method of expressing the character is awkward. A specimen of the genotype, *Clistopyga incitator* (Fabricius), determined by Roman, has the hypopygium prominent but not extending far beyond the apex of the abdomen and not inclosed by the tergites; the claws are not pectinate, as stated by Ashmead, but are strongly toothed basally; the ovipositor is up-curved. The females of all the other species studied agree in all of these characters. In some species the male has the lower cheek deeply impressed and highly polished, the impression flanked on the outer side by a high, sharp ridge. This last has been referred to by Schmiedeknecht⁹ and by Morley¹⁰ as a generic character.

Biological records concerning the members of this genus are conflicting. Among the specimens examined are only two such records. The types of one of the new species described below are said to have been reared from a "spider nest," and a male of another new species labeled "Hopkins U. S. No. 13334h" is said to have been found as an adult in the burrow of *Calopus angustus* LeConte in *Pinus murrayana* at Yosemite National Park. *Clistopyga incitator* (Fabricius) of Europe is said by Brischke to have been reared from *Retinia resinana*, while Morley quotes records of its having been reared from "beech infested with *Anobii* and *Ptilinus pectinicornis*" and from galls of *Cynips kollari*. The "spider nest" mentioned above accompanied the specimens, but unfortunately whether it was an egg sac or the retreat on an adult spider could not be determined because of its condition. It seems likely that the records associating species of the genus with other than spiders have resulted from the place of abode of a spider host.

The seven North American species are very readily distinguished by the characters used in the following table. So few males are available for study that this table is based only on females, with male characters given where specimens of that sex are at hand. The first character used, the comparative length of hind tarsi and tibiae, can not, as worded, be applied to males, the orbital character being better used for that sex.

TABLE TO SPECIES.

1. Posterior tarsi nearly twice as long as their tibiae, the latter distinctly shorter than their femora; yellow orbital ring strong and extending uninterrupted to beyond top of eye-----	2
Posterior tarsi not nearly twice as long as their tibiae, the latter subequal to or slightly longer than their femora; yellow orbital ring incomplete or absent-----	3
2. Hind and middle tibiae blackish with whitish annulus, first four joints of their tarsi blackish with white basal ring; propodeum with a median longitudinal furrow-----	recurva (Say).

⁹ Opusc. Ichn., vol. 3, p. 1174.¹⁰ Brit. Ichn., vol. 3, p. 138.

- Hind tibiae and tarsi practically concolorous with their femora, the tibiae
 obsoletely annulated, the tarsi pale and not annulated; propodeum
 without longitudinal furrow-----*pulchripicta* Ashmead.
3. Thorax more or less red below; orbital ring indicated at least by yellow
 marks at sides of face and above eyes----- 4
 Thorax entirely black; face black without markings; orbital ring entirely or
 practically wanting, being sometimes represented by a very minute indis-
 tinct reddish spot at top of eye and in male at sides of face----- 6
4. First tergite elevated in middle, the carinae strong nearly to apex; meso-
 pleural furrow crenulate above; mesoscutum black; ovipositor stout,
 uniformly curved-----*maculifrons*, new species.
- First tergite flattened above, carinae obsolete beyond summit; mesopleural
 furrow not crenulate; mesoscutum more or less red; ovipositor slender,
 straight to beyond middle----- 5
5. Prescutum black; orbital ring represented by three yellow spots, two at
 top of eye and one just below antenna; propodeum polished, sparsely
 punctate-----*nigrifrons*, new species.
- Prescutum red, the mesoscutum with a median black spot flanked on either
 side by a yellow spot; orbital ring complete from vertex to malar space,
 cheek also yellow; propodeum anteriorly transversely punctate-striate.
manni, new species.
6. Propodeum with distinct median carinae; ovipositor sheath much less than
 twice as long as first tergite; hind tibia in female not longer than femur;
 cheek in male deeply impressed, the impression flanked on the outside
 by a strong carinate tubercule-----*canadensis* Provancher.
- Propodeum without median carina or impression; ovipositor sheath very
 nearly twice as long as first tergite, the ovipositor very slender, strongly
 compressed and very attenuate at apex; hind tibia in female longer than
 femur; cheek of male normal-----*atrata*, new species.

CLISTOPYGA RECURVA (Say).

Anomalon recurvus SAY, Boston Journ. Nat. Hist., vol. 1, 1835, p. 243. (LeConte
 ed., vol. 2, p. 698). *Type*.—Lost.

Clistopyga annulipes CRESSON, Trans. Amer. Ent. Soc., vol. 3, 1870, p. 150.
Type.—No. 1443, Acad. Nat. Sci. Phila.

Clistopyga recurva (Say), CUSHMAN and GAHAN, Proc. Ent. Soc. Wash., vol.
 23, 1921, p. 157. Neotype in U. S. N. M.

Discussion based on notes on Cresson's type, a neotype designated
 by Cushman and Gahan, and other material.

This, the most abundant North American species of the genus
 exhibits in the most marked degree the peculiar characters of the
 genus. The eyes are very widely separated, inwardly parallel and
 barely emarginate; the orbital maculation very strong; the thorax
 fully twice as long as high, with the posterior margin of the meso-
 pleurum extremely oblique, and the propodeum very long, gently
 sloping, and without carinae; the abdomen long and slender; the
 first tergite flattened above with the carinae obsolete beyond the
 summit; the hind tibiae distinctly shorter than their femora and
 barely half as long as their tarsi.

There is considerable variation in both size and color. The fe-
 males are from 8 to 12 mm. long, with ovipositor from 1.75 to 2 mm.
 long. The yellow markings are fairly constant except on the face,

this varying from yellow with a narrow median stripe and the clypeal suture brownish to entirely brownish except the orbits and a small spot below each antenna. The thorax, except for the usual yellow markings, varies from entirely black with faint reddish reflections on the mesosternum to distinctly reddish both below and above, with the scutellum especially bright, and with a distinct whitish mark on each side of the middle of the mesoscutum. The tergites are frequently very narrowly edged with white though sometimes entirely black. The hind tibiae are usually very dark fuscous but occasionally pale fuscous, and the extent of dark color on the tarsal joints varies widely.

The only male that I have seen is 5.5 mm. long. It has the mesoscutum and mesopleura and metapleura red, the face entirely yellow, the front and middle legs white except faint indications of tibial and tarsal annulations, the hind coxae stramineous, the trochanters and the femora outside (largely) white; the tibiae and tarsi colored as in female but the white somewhat more extensive. The cheeks are normal. The hind tibiae are about as long as the femora and first trochanter joint together and about equal in length to the first four tarsal joints. The abdomen is very slender and parallel sided with the first tergite twice as long as wide at apex and the others only about three-fourths as wide as long.

Say's type was from Indiana and Cresson's from Massachusetts. Other specimens are from Anglesea, New Jersey (F. Haimbach); Washington, District of Columbia (F. C. Pratt); Falls Church, Virginia (N. Banks); Ocean View, Virginia (A. N. Caudell) (*neotype*); Raleigh, North Carolina; Mississippi; Texas (Belfrage).

CLISTOPYGA PULCHRIPICTA Ashmead.

Clistopyga pulchripicta ASHMEAD, Proc. U. S. Nat. Mus., vol. 12, 1890, p. 448, female. *Type*.—Cat. No. 2114, U. S. N. M.

Discussion based on type.

That portion of Ashmead's description referring to the oblique grooves is misleading. The grooves are not analogous to those of *Glypta* but are far down on the sides and are not especially conspicuous.

This species is very closely allied to if not synonymous with *recurva* (Say), most of the distinguishing characters observed being incorporated in the table to species. In addition the nervellus is broken somewhat higher up and the thorax is largely red. All of these characters are variable in *recurva*.

The only known specimen is the type, which is from Texas.

CLISTOPYGA MACULIFRONS, new species.

This species is very distinct from either of the previously described North American species (*Clistopyga recurva* (Say), *Clisto-*

pyga pulchripicta Ashmead, and *Clistopyga canadensis* Provancher), but structurally is more closely allied to *canadensis* Provancher than to either of the others or the following two new species.

Female.—Length 6.5 mm., antennae (broken), ovipositor 1.6 mm. Head with temples slightly convex, polished, impunctate behind the eyes, frons sparsely, face densely punctate; face slightly wider than long; malar space nearly as long as basal width of mandible; ocelli arranged in a nearly equilateral triangle, the postocellar and ocellular lines equal and about one and one-half times greatest diameter of a lateral ocellus; thorax not especially long, arched above, weakly and sparsely punctate laterally and ventrally, somewhat more densely and strongly so above, especially the propodeum, on which transverse aciculation and punctation are mingled, and which has two very short carinae above, subtending a median groove; propodeum strongly arched; mesopleural furrow crenulate above; hind tibia very slightly longer than the femur and nearly three-fourths as long as the tarsus, the basal joint of which is equal to the second and third together; nervellus broken about one-third above the brachilla; abdomen finely, deeply, densely punctate; first tergite with dorsal carinae extending nearly to apex, the area between polished, laterally with a rather distinct oblique impression apically and a low nearly circular elevation; tergites 2-5 with basal oblique and apical transverse impressions setting off strong elevations; tergites 2-6 successively, gradually shorter, 7 and 8 retracted, 8 with an upturned apical rim; ovipositor rather stout and uniformly up-curved.

Piceous black with mesosternum and pleura and metapleura testaceous; tegulae, pronotum narrowly above, clypeus, a stripe below each antenna, inner orbit below, a spot on upper orbit, scape, and basal flagellar joint below, yellowish white; legs generally testaceous with front coxae, front and middle trochanters, a more or less distinct annulus on each tibia and basal portion of first three joints of all tarsi whitish; other portions of tibiae and tarsi more or less infuscated the color on the hind legs being nearly black; wings hyaline, veins fuscous, whitish at base.

Type locality.—Texas.

Type.—Cat. No. 20058, U.S.N.M.

CLISTOPYGA NIGRIFRONS, new species.

Differs from *maculifrons* Cushman, principally as follows:

Female.—Length 7.0 mm.; antennae (broken); ovipositor 1.4 mm. Head less strongly punctate, the front entirely impunctate; malar space fully as long as basal width of mandible; postocellar line about a half longer than ocellular line, the latter about equal to greatest diameter of a lateral ocellus; thorax polished and practically im-

punctate below, very sparsely, weakly so above; mesopleural furrow not crenulate; propodeum barely arched, polished behind and medially at base, without carinae but with a weak median furrow; punctation, impressions, and elevations of tergites weak, the first tergite practically noncarinate, the carinate flattened beyond the anterior angles; ovipositor shorter, more slender and tapering, and less strongly curved.

Face black except for minute reddish spot below each antenna and an orbital spot opposite these; upper orbits narrowly yellow from inner eye emargination to top of eye with a brief interruption opposite the ocellus; thorax black with mesopleura, except large spot below posterior wing, mesosternum, metapleura, scutellum, parapsides, and anterior lateral angles of prescutum, testaceous; scutellum and postscutellum tipped with yellowish white; white dorsal margin of pronotum extending beyond notauli; legs similarly colored except that apical annulus of tibia is prolonged below to base and the tarsi are not distinctly annulated.

A single female paratype differs from the type only in size, having the following measurements: length, 5.5 mm.; antennae, 4 mm.; ovipositor, 1.25 mm.

Type locality.—Mountain View, California,

Host.—"On spider nest."

Type.—Cat. No. 20059, U.S.N.M.

Described from the above two specimens reared from the host in July, 1898 (Ehrhorn), under No. 85240¹.

CLISTOPYGA MANNI, new species.

Closely related to *nigrifrons* Cushman, but larger, more slender, and with more slender legs. Compared with the above description of *maculifrons* Cushman differs as follows:

Female.—Length 8 mm., antennae 6 mm., ovipositor 1.6 mm. Face weakly punctate, frons polished, impunctate; malar space as long as basal width of mandible; postocellar line distinctly longer than ocellular line, the latter subequal to greatest diameter of lateral ocellus; thorax highly polished, only very obscurely punctate; propodeum weakly arched, with a median groove but without carinae; mesopleural furrow not crenulate; nervellus broken at lower fourth; abdomen shining, the punctation sparser and less deep; first tergite with dorsal carinae obsolete beyond summit; apical impression and lateral elevation less distinct; ovipositor slender, straight to beyond middle.

Head black with distinct orbital markings extending from top of eye to malar space; cheeks also white; a small spot on face below each antenna; clypeus, mandible at base, palpi, scape and pedicel below whitish; thorax mostly red, with pronotum below, propleura,

a discal spot on mesoscutum, spot below hind wing, metasternum, propodeum dorsally, and sutures black to piceous; dorsal margin of pronotum, spot below front wing, tegulae, small spot on each side of middle of mesoscutum, apices of scutellum and postscutellum, whitish; front and middle legs white in front, femora and tibiae stramineous behind, middle tibia with dark mark outwardly, hind coxa testaceous, white at apex, trochanter white, basal joint piceous at base, femur pale testaceous, tibia white with fuscous subbasal spot and apical annulus, tarsi white with joints fuscous at apex; wings yellowish; abdomen black.

Type locality.—Pacific Grove, California.

Type.—Cat. No. 24164, U.S.N.M.

One female captured by W. M. Mann.

CLISTOPYGA CANADENSIS Provancher.

Clistopyga canadensis PROVANCHER, Nat. Can., vol. 12, 1880, p. 45. *Type*.—Public Museum, Quebec. Female bearing yellow label 396.

Discussion based on notes by S. A. Rohwer on type and female paratype, and female in collection of Mr. Nathan Banks, together with one female and two males in United States National Museum collection.

Very distinct from any of the foregoing species by reason of its almost entire lack of maculation. Face shining with distinct, separate punctures medially, frons and orbits impunctate; ocelli small, postocellar line slightly longer than ocell-ocular line; scutellum and postscutellum shining, practically impunctate; wings dusky, nervellus broken slightly below middle; tergites with distinct, rather close punctures, second slightly longer than third; ovipositor rather weakly upcurved.

The female from the collection of Mr. Banks agrees with Provancher's description and also with the above. It is 8.5 mm. long. Those portions noted by Provancher as being white (that is, palpi, front trochanters, and tegulae) are somewhat darker, and there is no trace of the white annulus on the front tibia. The orbital maculation is represented by very minute reddish spots at the top of the eyes. The thorax is strongly compressed. The first tergite is slightly elevated above with the carinae strong to summit. Two males in the National Museum collection agree very well with the female. The sculpture is slightly stronger. The lower cheeks are impressed and carinate. In one of the males the orbital maculation is exactly as in the female; but in the other it is yellowish and more extensive, being also represented by a short, narrow line at the side of the face.

The type is from Cap Rouge, Quebec; the Banks specimen from Middlesex Falls, Massachusetts; the National Museum female from Nerepis, New Brunswick (A. G. Leavitt), and the two males from Colorado and Oswego, New York.

CLISTOPYGA ATRATA, new species.

In color and structure very similar to *canadensis* Provancher, but distinctly more slender.

Female.—Length, 7 mm.; antennae, 4 mm.; ovipositor, 1.75 mm.

Slender; head in front view transverse, polished, except face, which has distinct well separated punctures; face convex with a median rounded elevation; clypeus medially triangularly impressed nearly to base; malar space hardly as long as basal width of mandible; diameter of lateral ocellus equal to postocellar line and longer than ocell-ocular line; thorax polished, mesoscutum and scutellum slightly roughened; metapleurum sparsely and finely punctate; propodeum without median carinae, sparsely punctate laterally, transversely arcuately striate behind; nervulus postfurcal, nearly perpendicular; nervellus broken far below middle, perpendicular; hind tibia longer than femur; abdomen nearly twice as long as head and thorax, finely, densely punctate, the tergites with distinct elevations and impressions, first tergite slightly elevated with carinae strong to summit of elevation; ovipositor slender, distinctly compressed, and straight to near apex, sheath nearly twice as long as first tergite.

Black; clypeus piceous; basal flagellar joints pale beneath; palpi, humeral angle of pronotum, and tegulae whitish; wings hyaline, very slightly brownish stained; legs testaceous, front legs, especially coxae and trochanters almost stramineous, hind tibia fuscous with a white annulus, reddish below at apex, hind tarsus fuscous with the first three joints more or less white at base, the same pattern repeated in less contrasting colors on middle tibia and tarsus.

Male.—Like female but thorax and abdomen more strongly sculptured; upper orbits with a small brownish mark; front coxae and trochanters white; cheeks normal.

Type locality.—Berkley, California.

Allotype locality.—Yosemite National Park, California.

Type.—Cat. No. 24165, U.S.N.M.

One female taken in September, 1914, by E. P. Van Duzee and one male taken August 10, 1917, by J. E. Patterson and recorded under Hopkins U. S. No. 13334*h*, which shows it to have been taken from the gallery of *Calopus angustus* Le Conte in *Pinus murrayana*.

SPECIES WRONGLY INCLUDED IN CLISTOPYGA.

(*Clistopyga nigrocephala* Davis) = *Polysphincta* (*Zatypota*) *nigrocephala* (Davis).

(*Clistopyga pleuralis* Ashmead) = *Asphragis pleuralis* (Ashmead).

(*Clistopyga truncata* Provancher) = *Glypta truncata* (Provancher).

(*Clistopyga zonata* Davis) = *Tromatobia zonata* (Davis).